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ABSTRACT

The college designations of over 5,800 recent graduates of 60 private secondary schools and the relationships between characteristics of these schools and the average selectivity of the colleges attended for each school were investigated. Aggregating all graduates, the data show considerable success in gaining admission to selective, prestigious private colleges and universities. Over 81 percent attended private institutions (religious and nonsectarian), and 69 percent attended colleges identified by Astin as either very highly or highly selective. The colleges attended compensate their full professors better than average and they enroll students from families of generally higher social status than other colleges. Approximately 19 percent of the students were admitted into the top 25 colleges attended by major business leaders. Almost 40 percent attended one of the top 100 sources of the bachelor's degree of the Ph.D's for the period 1958-1966. Finally, the colleges attended had many alumni listed in "Who's Who" and the "Social Register." Two school variables, the size of the average scholarship offered by the secondary school (the best predictor) and the size of the faculty, together account for about 34 percent of the variance in average selectivity. Other variables that were assessed include the size of endowment; size and worth of facilities; status indicators (date of founding and whether the school has been identified as traditional among the elite of private boarding schools); student body diversity (as indicated by number of scholarships offered and the amounts of scholarships); school enrollment; number of graduates; and student-faculty ratio. (Author/SW)

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PRIVATE SCHOOL GRADUATION AND COLLEGE ATTENDANCE: PATTERNS OF TRANSITION

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Abstract

This paper investigates the college destinations of over 5800 recent graduates of sixty private secondary schools and explores relationships between characteristics of these schools and the average selectivity of the colleges attended for each school.

Aggregating all graduates, these data show considerable success in gaining admission to selective, prestigious private colleges and universities. Sixty-nine percent of these students attended colleges identified by Astin as either very highly or highly selective. The colleges attended compensate their full professors better than average and they enroll students from families of generally higher social status than other colleges. Approximately nineteen percent of the students were admitted into the top twenty-five colleges attended by major business leaders. Almost forty percent attended one of the top 100 sources of the bachelor's degree of Ph.D's for the period 1958-1966. Finally, the colleges attended had many alumni listed in Who's Who and the Social Register.

The paper concludes with an analysis of characteristics of the secondary schools associated with the average selectivity of the colleges attended by their graduates. Two school variables, the size of the average scholarship offered by the secondary school (the best predictor) and the size of the faculty, together account for about thirty-four percent of the variance in average selectivity.

PRIVATE SCHOOL GRADUATES AND COLLEGE ATTENDANCE:
PATTERNS OF TRANSITION

Public education, perhaps always facing criticism and crisis, is increasingly facing a serious competitor. Although private elementary and secondary schools have been a part of American education from the beginning, their popularity has recently increased. According to a recent New York Times article (Noble, 1980), applications and enrollments are on the rise. While there are undoubtedly many motivations for sending a child to a private secondary school, the desire to improve chances for admission to a selective college is surely high among them. However, most research addressing college destinations has not used data from private schools. Following up on previous research limited to a small group of highly elite boarding schools, this paper will examine the patterns of college destinations for a larger and more heterogeneous sample of sixty private secondary schools.

Given the lack of research on this topic, the primary purpose of this research is descriptive. Nevertheless, it fits into the larger effort to better understand the patterns of secondary school - college transition which has been undertaken by sociologists and others interested in the consequences of different educational experiences (see Kerckhoff, 1980, for a review of some of this literature). The essential question of this latter line of research has been to determine the contribution education makes to the life chances and occupational attainment of adults. Because much of this research has been carried out on longitudinal samples of public school graduates, the effects of private school attendance have not been systematically studied. Moreover, data from the widely used National

Longitudinal Study, which does include some private school graduates, suggests that research on specific types of secondary schools -- in particular, college preparatory -- "might find that college prep graduates attend more selective colleges" (Kolstad, 1979:21).

This paper examines college destinations of the graduates from 60 such schools. While research on public school graduates work and educational destinations have been widely studied (e.g., Trent and Medsker, 1959, Astin, 1965, and the studies emerging from the National Longitudinal Study of 1972), private school graduates have been either missing from the available data sources, or sampled in very small numbers (e.g., only 244 private school students were included in the 1972 NLS). Since the vast majority of private college preparatory graduates attend a college or university upon graduation, the concern of this research was to determine the characteristics of the colleges they attend. The college data included in this study form three groups concerning resources, students and type. How these graduates fare in college admissions, especially with respect to the nature and standing of the college, is of central concern. Previous writing and research on such schools (Baltzell, 1971; Mills, 1956; Domhoff, 1967; Baird, 1977) has emphasized the role such schools play as feeder schools for selective colleges. However, outside of a study of 16 traditionally elite boarding schools (Hammack and Cookson, 1980), virtually no systematic evidence has been brought to bare on this assertion.

Furthermore, no previous research has attempted to relate characteristics of private secondary schools to the college destinations of their graduates. This and related questions have been frequently addressed for groups of public schools (e.g., Sexton, 1961; Coleman, et al., 1966; Jencks, et al., 1972; Summers and Wolfe, 1977), but comparative evidence

from private schools has not been available. This research does examine some secondary school variables in relation to one indicator of achievement: college admissions. However, lacking data on student ability and parental background beyond what can be inferred from attendance at a private college preparatory school, this paper cannot assess the unique contribution of the school to student admissions. Nevertheless, the paper provides a beginning to such important research.

Methodology

During the summer of 1978 a request for information about the college destinations of the class of 1978 was sent to 81 private secondary schools. These schools were initially chosen because information was available from previous graduating classes. This existing information had been drawn from the admissions office of the Washington Square College of Arts and Science at New York University. These earlier data are not used in the following analyses, however, as they did not prove compatible with the data gathered in the survey undertaken in 1978. A total of 63 schools responded to the survey (77%), of which 60 were usable, for a return rate of 74%. The majority of these schools were located in the Northeast, though several are from other regions of the country.

The information supplied by the schools consisted of lists of the colleges attended by the graduates. Only those four-year institutions located in the United States were used. The college attendance data, therefore, identified each college attended by each graduate, providing that the college was not a junior college or other less than bachelor degree granting institution, and that it was located in the United States.

For each secondary school, data concerning the characteristics of the school were taken from the Porter Sargent Handbook of Private Schools,

1978. This widely used source provides a variety of information. For this analysis, the enrollment, size of faculty, date of founding, endowment, plant worth, size of library, number of scholarships offered, the amount of dollars available for scholarships and whether the school was primarily a boarding or a day school were variables drawn from the Handbook. Additionally, whether the school had been included on several lists of traditionally elite schools was included.

Because this research was concerned with the nature of the colleges attended by the graduates of the private schools, a file containing all the colleges attended along with their characteristics was created. This file drew its data from a variety of sources. From the 1977 edition of Cass and Birnbaum, Comparative Guide to American Colleges, were taken the size of the college and the nature of its control. The admissions selectivity of the college was derived from the 1977 edition of The American College Freshman, issued by Cooperative Institutional Research Program of the American Council on Education and the University of California at Los Angeles. A measure of the status origins of students at the colleges was taken from Astin's Who Goes Where to College?(1965). Faculty salaries were derived from the AAUP report on salaries as reported in the Chronicle of Higher Education(1978). The endowment of the college was taken from the information provided in the Chronicle of Higher Education Deskbook, 1978-1979.

Four variables regarding the alumni of the colleges were also included in the analysis. The number of graduates listed in the 1977 edition of the Social Register was taken from the Hawes Comprehensive Guide to Colleges (1978). Likewise, the number of graduates listed in the 1976-1977 edition of Who's Who from each college was drawn from the

Hawes Guide. Whether the college was one of the one hundred leading sources of doctorate recipients for the period 1958 to 1966 was determined from a report issued by the National Academy of Sciences (1967). Finally, whether the college was one of the top twenty-five sources of higher education for executives and directors listed in Standard and Poor's Register of Corporations, Directors and Executives, as reported by Pierson in 1969, was also recorded.

The individual student college destinations for each secondary school were first recorded, along with the characteristics of the college, and then aggregated. This procedure created averages for each school on the college characteristic variables.

The data analysis is comprised of three stages. First, univariate distributions of the college characteristics for the sample as a whole (which is composed of the college choices of 5805 students graduating from the 60 schools) were obtained. Secondly, using college characteristic means for the 60 secondary schools, correlational analyses were undertaken among the school variables, the college variables, and between the two. Finally, college selectivity was singled out as a dependent variable for a series of multivariate analyses with school variables.

Results: Aggregated Student Sample

Table 1 presents the distributions of a variety of characteristics of the colleges attended by students from all 60 of the secondary schools studied here. In the discussion which follows, each panel of the Table will be discussed in turn.

With respect to the selectivity of the colleges attended, it is

evident that this group of students has had considerable success in attaining admission to selective colleges. This measure, taken from Astin, et al. (1978), is based on the average freshman SAT or ACT test scores.[1] The category cut-off points vary by type of institution, and thus the ranges of SAT or ACT scores are not the same for all types of colleges. Nevertheless, 68.7 percent of this group of students enrolled in schools deemed highly or very highly selective by Astin, et al.. For comparative purposes, it is interesting to note that the Astin, et al. report shows that of all college freshmen in 1977, 20.4 percent were attending colleges in these two categories. Moreover, it is useful to note that only 46 colleges (enrolling 21.8 percent of this sample) are rated by Astin, et al. as very highly selective, while 260 (enrolling 46.9 percent of this sample) are rated as highly selective.

In earlier research of 16 traditionally elite private secondary schools (Hammack and Cookson, 1980), which are included in the 60 studied here, selectivity of college attended was also examined. In that study, the selectivity classification of Cass and Birnbaum (1977) was used. It contains six levels and is available for the entire group studied here (see Appendix 1). Comparison with the data from the 16 elite schools shows that the students studied here were somewhat less likely to attend the most selective colleges and universities. For example, 36 percent of the elite school graduates attended colleges in Cass and Birnbaum's "most selective" category (the highest), while 25 percent of the entire sample of students attended such colleges. About 27 percent from the elite 16 schools attended colleges in the next selectivity category ("highly selective"), while 23 percent of the

larger sample attend colleges in that category. While this sample shows attendance at colleges somewhat less selective than those attended by graduates of the elite 16, they are still far more likely to attend selective colleges than are average secondary shcool graduates in the country.

The data for the second college characteristic, control, demonstrates that these private school graduates are most likely to attend private colleges and universities. Over 81 percent attend private institutions (religious and non-sectarian). For comparative pruposes, national data show that 21 percent of all post-secondary students enroll in the private sector. The figures for Northeastern states, however, are larger, reflecting the strenth of private higher education in that region. Almost 55 percent of students in Massachusetts attend private colleges, 42 percent in New Hampshire, 39 percent in Pennsylvania, 38 percent in Connecticut, and 24 percent in New Jersey illustrate the higher than national rates for the Northeast.[2] Most (52) of the 60 private secondary schools included in this study are located in the Northeast. Nevertheless, the propensity of these graduates to remain in private education is clearly strong.

Although available national data are not broken down in the same categories as those used here, the group of students are more likely to attend small colleges than the national figures would suggest. While almost 14 percent of the group of students attended colleges with enrollments under 1500 and 27 percent attended colleges enrolling between 1500 and 3000, according to The Digest of Educational Statistics (1977:101), nationally only 5 percent of all college students enroll in colleges

with fewer than 1000 students, and 10 percent attend colleges with between 1000 and 2500 students. Thus, 41 percent of the sample attend colleges with fewer than 3000 students as compared to 15 percent of the national student population attending colleges enrolling fewer than 2500 students.

However, as private colleges tend to be smaller than public colleges, these findings are not surprising. Moreover, the national data on the size of the private colleges attended by students are closer to the data for this sample of students. Nationally, 16 percent of the private college students are enrolled at colleges with fewer than 1000 students, while 25 percent attend colleges between 1000 and 2500 (Digest, 1978:101).

The next section of Table 1 contains information on the average full professor's total annual compensation (including fringe benefits) for each college attended by the students in this study. The data refer to compensation for the academic year 1977-1978. During this same period, the national average for a full professor's total compensation was $28,500.[3] As 51.5 percent of the colleges attended by these students provided an average of $30,000 or more for faculty in the top rank, this section of Table 1 shows that there is a slight bias toward colleges and universities which compensate their full professors better than the national average. However, the difference is small. For the earlier group of graduates from the 16 traditionally elite private schools, the percent attending colleges with average full professor's compensation over $30,000 was over 64 percent (Hammack and Cookson, 1980:486).

The median endowment held in June 1976 by colleges attended was $81,098,000. This data was available for only 130 colleges and universities and may represent some bias -- most likely toward higher amounts. Moreover, the variation in the size of endowments is enormous,

ranging from $1.4 billion to just over $500,000. The high amount (Harvard) was almost three times larger than the second largest (Yale with $568 million).

Because of the limited availability of this data, and because the colleges for which endowment information is unavailable are likely to have relatively small amounts and may be public institutions (which have traditionally not sought endowment funds), these data are of limited use. Nevertheless, they do provide an indicator, especially during these financially difficult times, of the differential resources to which colleges and universities have access. By way of comparison, data provided by the National Center for Educational Statistics (Brandt, 1980:220-221) show that the average endowment of a United States sample of 1785 public and private colleges and universities was $9,343,156. The average for private colleges and universities (N = 1230) was $10,947,435. Thus, these students attend colleges with far larger endowments than average.

The measure of freshman family status found in the next section of the Table is derived from Astin's 1965 work, Who Goes Where to College and represents estimated T-scores for his sample of 1,015 colleges. Only 26 (2 percent) colleges fall into the highest category, while the next highest category contains 147 (14 percent) colleges. In this group of students, 23.5 percent attended those 26 colleges with the highest family status score. A total of almost 57 percent attended colleges in the top two categories, both of which lie above the first standard deviation unit of Astin's distribution. This compares to almost 70 percent of the graduates from the elite 16 secondary schools studied earlier who attended colleges in the top two categories (Hammack and Cookson, 1980:486).

The next section of Table 1 contains the proportion of graduates who attended colleges identified from Standard and Poor's study of collegiate, graduate and professional school connections of the 72,153 executives and directors listed in their 1964 Directory. Of those individuals, 23,389 attended one of the top 25 colleges and universities, and 23,690 had no colleges affiliation listed. Just over 18 percent of the students studied here (1,096 students) attended one of the top 25 colleges on this list. The list itself is reproduced in Appendix 2 of this paper.

Because this list was taken from those executives and directors listed in 1964, more recent studies were sought for comparison. Sterdivant and Adler (1975) report that the collegiate origins of 444 top executives from 247 major companies provide evidence for "educational coherence" of executives (1975:130). "The top four universities attended in 1900 are the same as the 1975 top four, and all were within the top ten during 1925, 1950, and 1964." The top ten in their 1975 study were Harvard, Yale, M.I.T., Columbia, Pennsylvania, Stanford, New York University, Princeton, Michigan and Northwestern (1975:131). All were included on the Standard and Poor's 1964 list used here.

In 1980, The Chronicle of Higher Education carried an article reporting on collegiate connections of executives surveyed by Standard and Poor's. The 55,834 executives listed a total of 498 colleges. "At the bachelor's degree level, 12 colleges and universities accounted for the degrees held by 13,604 of the executives. At the graduate level, the top 12 institutions granted 11,934 degrees. This figure amounted to about one-fourth of the undergraduate degrees earned and nearly one-half of the graduate degrees (1980:1)." The colleges and universities found in this article are listed in Appendix 3.

In essence, these more recent studies affirm that there exists a relatively small number of institutions which supply a very large proportion of leaders of major business enterprises in the country. Approximately 19 percent of the graduates of the private secondary schools studied here attend such colleges and universities.

Another different type of college attribute included in Table 1 is the number of an institution's graduates who went on to earn a doctorate. The data included under the heading "Bachelor's List" refers to the proportion of sample students who attended a college listed by the National Academy of Sciences as one of the top 100 sources of the bachelor's degree for those who obtained a doctorate degree during the period 1958 to 1966. Almost 40 percent of these students attended one of the 100 colleges or universities.

The last two sections of the Table, labeled Social Register and Who's Who, present the mean number of graduates from the colleges attended who were listed in the 1977 national edition of The Social Register and the 1976-1977 national edition of Who's Who. The data are taken from Hawes (1978). He reports that 597 colleges were named by the 30,000 people listed in The Social Register. Eight colleges had over 500 alumni listed (Harvard, Yale and Princeton had over 3,000 each); 32 colleges had between 100 and 500 graduates listed; 164 had between 10 and 99 graduates; and 398 had up to 10. The mean for the colleges attended by the 4,680 students of the sample studied here whose colleges had any graduates listed in The Social Register was 536.8.

There are about 70,000 individuals listed in Who's Who in America. Listing is based on position or achievement, as determined by the publisher, in a wide variety of activities: education, business, the arts,

etc. The data in Hawes Guide are based on counts of where persons on every tenth page went to college. College totals of less than four were omitted. The specific counts were then multiplied by 10. The figures, as those for the Register, are not weighed by the size of the college's alumni, and therefore do not reflect the relative contribution of a college to the Who's Who, but rather its total contribution. The age of a college nor its proportion of female alumnae are taken into account. Both factors may influence the college's counts. With these limitations in mind, the average number of graduates, listed in Who's Who for the colleges listed by Hawes Guide and attended by 4,328 graduates in this sample, was 447.6.

I know of no previous studies, or other data with which to compare these figures. However, given the information on counts for colleges reviewed in the previous paragraphs, it is evident that large numbers of these students attend colleges with the highest numbers of graduates listed in The Social Register and Who's Who. It is important to recall that these data are means, and therefore are rather stongly affected by extremes. In this case, the extremes at the high end are much larger than the remainder. For example, Harvard had 4,039 graduates listed in The Social Register and enrolled 193 of this group of graduates. The fifth greatest number, 755 (University of Virginia, which enrolled 56) is less than one-fifth the size of Harvard. An examination of the medians for each of these variables demonstrates this point. For The Social Register measure, the median value is 96.44, while for the Who's Who variable, the median value is 179.85.

The data concerning the college graduates reviewed just above, including college connections of business leaders, those who earned doctorates,

and listings in The Social Register and Who's Who, provide evidence of the central role of these colleges in educating those who later have come to play important roles in American life. Levine (1980) has shown how close the connections were between the most elite secondary boarding schools and the powerful in this society at the turn of the century. The 12 schools he studied (which were included in the study of 16 elite schools referred to above), educated many of the children of the social and economic elite of the time. Although research reported here has no information on the parental origins of the students, it is clear that these private secondary schools educate many students who gain admission into a select group of colleges whose graduates are much more likely than graduates of other colleges to have high social and economic positions. These findings are similar to those reported by Useem and Miller (1977).

Results: School and College Data

The second section of this paper is concerned with examining the interrelationships among the school variables and those among the college variables. Earlier, the paper concerned the college data, but did not discuss the relationship among those characteristics. Those intercorrelations will be discussed below, along with the secondary school variables and their intercorrelations. We will then proceed to discuss the relationships between the school and one important college variable: selectivity.

Table 2 contains the means, standard deviations and N's for the school and college variables, grouped by each school. The college data in this Table are means (or medians) of the four year colleges attended by all graduates of each school.

Table 3 contains the intercorrelations among the secondary school variables. The variables can be grouped into four categories: resources,

status, diversity and size. Among these variables in the first group (wealth: endowment divided by enrollment, size of endowment, plant worth and size of library), the lowest correlation is .502. Thus, although not redundant, these measures clearly are highly associated with each other, and show that affluent schools evidence that fact among several different characteristics.

The status indicators (whether the school had been identified as traditionall among the elite of private boarding schools, and date of founding), show a much smaller relationship. The negative correlation is expected, given that age should be negatively correlated with eliteness (older schools have had a longer period in which to develop). The small size of the correlation, however, probably reflects the fact that many of the elite schools were founded during the latter part of the nineteenth century, while a number of non-elite schools are older (see Levine, 1980).

The third group of variables, including indicators of the diversity of the student body, show a variety of relationships. These variables (number of scholarships offered - NSCH; the amount of dollars available each year - SCHDOL; the avearge size of each schilarship - DOLSCH; and the proportion of students receiving a scholarship - PROSCH), all involve the schools' ability and effort to bring in students who are unable to pay the full tuition. This group of variables can be interpreted as measures of student body diversity. Scholarships are normally used by schools to bring in students unlike whose who can pay the full tuition: middle and working class and ethnic minorities. The number of scholarships schools offer is strongly related to the amount of funds devoted to providing scholarships (.877), but the number of scholarships

is not related to the average size of an award (-.073). In addition, the latter is moderately related to the amount of funds available for scholarships (.347). The proportion of students on scholarship is fairly strongly related to the amount of funds available (.401) and somewhat less strongly associated with the number of awards given (.372); finally, it is weakly related to the average size of a scholarship (.112).

Thus, although the number of scholarships and the amount of money devoted to scholarships are stongly associated, the choices made regarding the utilization of funds, specifically the average amount of an award, is not strongly associated with either the amount of available funds, nor the number of scholarships given. This variable (DOLSCH) will be more thoroughly discussed below, as it turns out to be the school variable most highly related to the average selectivity of the colleges attended by the graduates of each school.

Finally, the size group (enrollment, number of faculty, number of graduates and student-faculty ratio) all show high intercorrelations (the smallest being.736) except for student-faculty ratio. This variable has low correlations with virtually all other school variables except the average size of the scholarship offered (DOLSCH); the correlation between these two variables is -.518. Student-faculty ratios, like date of founding, should be inversely related with other variables which represent school quality and affluence indicators. We will return to this relationship later, but it is interesting to note that the student-faculty ratio does not have very strong (negative) association with either the other size variables or variables in other groups.

There are three groups of college variables included in this study: resources, students and college type. Because selectivity of the colleges

is based on incoming student performance, this characteristic has been included in the student group, even though it could also be seen as a college-type characteristic. As discussed above, the college variables are derived from means for colleges attended by students from each secondary school. They are aggregated means for each secondary school. The intercorrelations among these variables are presented in Table 4.

Among the resource variables (college endowment - COLEND and faculty compensation - FACSAL), the correlation is quite high (.649). Although clearly not redundant measures (endowment income is used for many purposes, only one of which may be to supplement faculty compensation), among the colleges attended by the students studied here the size of the endowment strongly varies with the average level of faculty compensation.

The student variables (average entering freshman status - ASTSTA; the average number of graduates from each college attended who earned a Ph.D. in the period from 1958 to 1966 - BALIST; the average proportion of colleges attended which were listed by Pierson as major sources of business leaders - PIER; the average number of students from colleges attended who were listed in The Social Register - HAWSP; and in Who's Who - HAWSA; and the average selectivity of the colleges each school's graduates attended - AVSEL) all show high intercorrelations (the lowest correlation is .426) considering the variety of sources of these variables and the diversity of characteristics they represent. The uniformly high associations demonstrate the degree to which achievement and social standing are melded and brought together in the colleges these graduates attend. For example, while average student status and listing in The Social Register (both status or prestige measures) are

correlated at .818, student status is also strongly associated with the Who's Who variable (.786) and BALIST (.609). It is evident from these data that among the colleges attended, if a college is high on one of the student variables, it is highly probable that the institution will be high on the others. Organizational prestige and reputation are clearly involved here, and these data demonstrate the pervasive nature of these phenomena.

Finally, the measures of college type (size and affiliation) show that the secondary schools studied here place their graduates in predominately non-religious private colleges, that the religious colleges tend to be small, and that the private and public colleges attended are not consistently one size.

Results: School Variables and Average College Selectivity

The last analysis carried out here singles out average college selectivity for further scrutiny. Although a number of the college variables are of interest, perhaps the one college attribute most widely studied and of considerable importance for private secondary schools (and for public schools as well) is the selectivity of the college is which their graduates gain entry. This attribute is very often used as an indicator of the "quality" of a college. Moreover, as Karabel and Astin (1975), among others, have pointed out, with high proportions of high school graduates attending some form of post-secondary institution, the important concern is no longer whether students attend college, but which ones they attend. For example, the Chronicle of Higher Education (1981: 14) recently noted that the number of college graduates in the labor force

had more than doubled in the last decade, from 8.7 million in 1970 to 17 million in 1980. The selectivity of the college one attends has been shown to affect the probability of dropping out (Astin, 1969; Wegner and Sewell, 1970; Astin, 1978) as well as occupational and income attainments (Bowen, 1977; Tinto, 1979; Rosenbaum, 1980; Griffin and Alexander, 1978). Thus, the determination of secondary school characteristics associated with high average college selectivity is an important theoretical and practical endeavor.

Based on previous studies of educational and occupational achievement, the ability of individuals has been found to be of considerable importance along with family origins, and other personal attributes. This study does not include such information. At the same time, however, following Alexander and Eckland's (1978) important research, the status context of the secondary school one attends provides an additional and independent impetus to college entry and specifically to the quality of college attended. While this study does not contain information regarding individual students, we do know that the tuition at these schools is high (averaging about $3,000 for day students and over $5,000 for boarding schools). In addition, the proportion of students on scholarships varied from 5 to 40 percent, with an average of 20 percent. Thus, the average family status for these 60 schools must be comparatively high, even though considerable variation does exist among them. The variability in average selectivity is also considerable. On the four point scale used here (Astin, et al., 1978), the averages for the 60 schools varied from 2.06 to 3.46, with an overall means of 2.79, and a standard deviation of .28.

This analysis, then moves beyond Alexander and Eckland in using only secondary schools with high average parental statuses. The question thus

becomes, among such schools, what attributes are most closely associated with average college selectivity?

Focusing on the college characteristic AVSEL, Table 5 indicates that a number of school variables are strongly and significantly related, ranging from DOLSCH (.509) to SFR (-.276). However, because of the strong intercorrelations among many of these school variables (as found in Table 3), a series of partial correlation analyses were conducted. The average scholarship award remained as the most strongly associated variable, even though its magnitude dropped when other variables were controlled (from .435 $p \geq .001$ to .331 $p \geq .01$, controlling for school wealth, .282 $p \geq .05$ controlling for wealth and SFR, and .272 $p \geq .05$ controlling for wealth, SFR and elite status. The initial zero-order correlation is different because the N changes).

While size of the faculty does not have a very strong zero-order relationship with average college selectivity, once the size of scholarship awarded is controlled, faculty size emerges as the only other variable importantly related to selectivity. In combination, the average size of scholarship offered and faculty size reduce to virtually zero all other school variables which had significant associations with average college selectivity, as shown in Table 6.

In order to further specify the effects of DOLSCH and NFAC, a regression analysis was undertaken, and is reported in Table 7. These two variables together account for over 34 ($R=.587$, $R^2=.345$) percent of the variance in average selectivity. Because the range of the selectivity variable is very small, compared to DOLSCH and NFAC, the "b" coefficients are very small. An examination of the standardized beta's, however, shows that

DOLSCH has a considerably larger effect than size of faculty, though the latter variable is clearly important.

Thus, of all the secondary school variables included in this analysis, the average size of scholarship awarded and the size of the faculty are the most important. These two variables are not related to each other ($r = -.032$). The scholarship variable has the strongest zero-order correlation with selectivity, and even though it is strongly related to other school variables, its relationship with selectivity remains significant when these other variables are controlled. Finally, the scholarship size and faculty size variables together account for 34 percent of the variance in selectivity.

Discussion

The graduates of these private colleges preparatory schools clearly have considerable success in attending selective and prestigious private colleges. They attend primarily private colleges and universities, which provide above average compensation to their full professors. The colleges have large average endowments, and enroll students from families of high social status. Approximately 19 percent of the students are enrolled in the 25 colleges most frequently named as sources of undergraduate education by major business leaders. Almost 40 percent attended a college listed among the top 100 sources of the bachelor's degree of those who went on to attain a Ph.D. degree between 1958 and 1966. Finally, the colleges attended had a high average of alumni who were listed in The Social Register and Who's Who. In sum, as a group the graduates of

these schools attended in high rates the most elite of our higher education institutions.

With respect to the characteristics of the schools which were associated with the average selectivity of the colleges their graduates attended, the analyses reported here found that the average size of the scholarships offered students and the size of the faculty were most important. The explanation of these findings which seems most plausible is that those private school which utilize their scholarship funds to provide relatively large average amount of support admit a higher proportion of academically talented students. Such schools may also select their non-scholarship students with similar attention to academic abilities. The combination of these admissions and scholarship policies, along with a fairly large faculty, produces the largest effects on the selectivity of colleges attended.

Referring back to Table 3, it is interesting to note that student-faculty ratio was strongly (-.518) associated with average size of scholarship. DOLSCH has rather strong zero-order correlations with other school characteristics, including the elite variable (.443), school wealth (STEND, .437), the boarding variable (.441) and student-faculty ratio (-.509). It appears, therefore, that while these other variables do not affect selectivity directly, they combine with average size of scholarships to increase a school's ability to recruit, educate and place their graduates. The school's abilities are also enhanced by having a relatively large faculty. This latter factor is strongly related to other school resource variables, including size of endowment, plant worth, library size, amount of dollars available for scholarships, the number of

scholarships offered and the elite status of the school.

However, it is important to return to the results of the partial correlation and regressions analyses to point out that the average size of a scholarship - clearly a policy decision on the part of the school - was the strongest unique variable affecting the average selectivity of colleges attended by graduates. Other school attributes may be important, but are not independently important.

It can be concluded that private secondary school success in placing their graduates in selective colleges is a function of a constellation of factors which include such resources as wealth, a sizable faculty and low student-faculty ratio, plus a commitment to devote those resources toward the creation of educational experiences sought by the admissions committees of selective colleges. That the average size of scholarships offered is the most important variable seems to point to the importance of recruiting students from less affluent families. But scholarship students comprise at most 40 percent of a school's enrollment, and it is unlikely that these students attend more selective colleges that their non-scholarship classmates. It may be that those schools offering high average scholarships do so out of a meritocratic orientation which influences all students. At the same time, such schools also seem to have relatively larger faculties who work with small groups of students. It may also be that such schools have very good relations with selective colleges, and that some form of institutional sponsorship is provided by the school in the college admissions process.

Such interpretations, however, must await fuller data sets for systematic examination. Specifically, information concerning the individual

students' background and their academic performance are needed in order to determine what independent effects the schools themselves may have on college admissions. The data reported here, however, do not support the conclusion that only affluent or elite private secondary schools are successful in placing their graduates. Such school attributes may be important, but they are not sufficient. These results do support, however, the conclusion that in comparison to graduates to public schools, private school graduates are much more likely to enter distinctive and elite colleges and universities.

TABLE 1. Characteristics of Colleges Attended by Total Student Sample (N = 5805)

Variable	Value/ Category	Percent	N
Selectivity	Low	10.1	588
	Medium	18.1	1049
	High	46.9	2722
	Very High	21.8	1268
	(Missing)	3.1	178
Control	Private	69.9	4056
	Religious	11.5	667
	Public	18.1	1050
	(Missing)	.5	32
Size	0 - 1499	17.0	988
	1500 - 2999	28.6	1660
	3000 +	53.0	3076
	(Missing)	1.4	81
Faculty Compensation	0 - 20999	1.4	80
	21000 - 25999	15.0	869
	26000 - 29999	26.2	1522
	30000 +	51.5	2992
	(Missing)	5.9	342
Endowment (Median)	81,098,000		3405
	(Missing)		2400
Freshman Status	0 - 29 (Low)	.6	34
	30- 39	.9	52
	40- 49	5.2	300
	50- 59	28.7	1666
	60- 69	33.4	1940
	70+ (High)	23.5	1366
	(Missing)	7.7	447
Pierson	Yes	18.9	1096
	No	81.1	4709
Bachelor's List	Yes	39.8	2310
	No	60.2	3495
Social Register	Mean = 536.79; Median = 96.44		4680
	N students attending colleges not listed		1125
Who's Who	Mean = 447.58; Median = 179.85		4328
	N students attending colleges not listed		1477

TABLE 2. Means, Standard Deviations and N's of Aggregated Variables (Sixty Secondary Schools)

Variable	Mean	Standard Deviation	N
SFR[1]	7.6	1.83	60
SCHDOL[2]	173.8	143.26	59
DOLSCH[3]	2189.1	775.44	56
STEND[4]	13.39	18.60	55
PROSCH[5]	.20	.09	57
ENR[6]	430.4	295.90	60
NFAC[7]	56.9	36.94	60
DATE[8]	867.4	58.81	60
END[9]	6986.1	13670.24	55
PWOR[10]	8139.2	8415.17	57
LIBSZ[11]	22.0	18.03	57
NSCH[12]	81.9	70.09	57
BOARD[13]	.50	.50	60
ELITE[14]	.27	.45	60
NGRAD[15]	97.2	71.51	60
ASTSTA[16]	4.7	.40	60
FACSAL[17]	3.3	.31	60
SIZE[18]	2.3	.21	60
PUB[19]	19.3	10.25	60
PRI[20]	67.4	14.36	60
REL[21]	13.2	8.60	60
PIER[22]	15.9	13.95	60
BALIST[23]	35.8	15.90	60
COLEND[24]	71956.7	55405.3	59

TABLE 2. Continued

Variable	Mean	Standard Deviation	N
HAWSP[25]	448.6	366.8	59
HAWSA[26]	378.7	209.75	59
AVSEL[27]	2.79	.28	60

1. Secondary school student/faculty ratio.
2. Amount of dollars available each year for scholarships for secondary school students, in thousands.
3. Average size of scholarship offered by secondary schools, in dollars.
4. Endowment divided by enrollment, for secondary schools.
5. Proportion of enrollment on scholarship, for secondary schools.
6. Enrollment of secondary schools.
7. Number of faculty, secondary schools.
8. Date of founding of secondary school.
9. Secondary school endowment, in thousands.
10. Dollar value of physical plant for secondary schools, in hundreds.
11. Number of volumns in secondary school library, in thousands.
12. Number of secondary school scholarships given each year.
13. If secondary school is predominately boarding (2/3 or more), code is 1; if less, code is 0.
14. If secondary school has been identified as one of the traditionally elite schools, code is 1; if not, code is 0 (see Hammack and Cookson, 1980).
15. Size of secondary schools graduating class; includes only those who attended a four year college in the United States.
16. Astin (1965) freshman status score. The data are average means for all colleges attended by the graduates of each secondary school, which have been aggregated to yield values for all schools. Astin's data are in the form of estimated T scores for his sample of 1,015 colleges. The codes which have been averaged in this analysis are as follows: 1 equals a T score between 0 and 29; 2 equals a T score between 30 and 39; 3 equals a score between 40 and 49; 4 equals a seore between 50 and 59; 5 equals a score between 60 and 69; 6 equals a score greater than 70. See text for further discussion.
17. Average mean of full professor's total annual compensation. This information has been coded as follows: 1 equals a compensation ranging from 0 to 20999 dollars; 2 equals 21000 to 25999; 3 equals 26000 and over.
18. Average mean of full time students who are undergraduates at the colleges attended. The variable has been coded as follows: 1 equals up to 1499 students; 2 equals 1500 to 2999; 3 equals over 3000.
19. Average proportion of colleges attended which were publicaly controlled.
20. Average proportion of colleges attended which were privately controlled, excluding those claiming a religious affialiation.
21. Average proportion of colleges attended which claimed religious affialiation.
22. Average proportion of colleges attended included on Pierson's list of the top 25 sources of higher education for executives and directors.
23. Average proportion of colleges attended which were included on the National Academy of Sciences list of the top 100 collegiate sources of the bachelor's degree for earners of a doctorate during 1958 to 1966.

TABLE 2. Continued

24. Average mean college endowment.
25. Average mean number of graduates of colleges attended who were listed in the national 1977 edition of the Social Register, as taken from Hawes (1978).
26. Average mean number of graduates of colleges attended who ere listed in the national 1976-1977 edition of Who's Who, as taken from Hawes (1978).
27. Average mean selectivity of colleges attended. Scores are based on data taken from the 1977 edition of The American College Freshman and are coded as follows: low equals 1; medium equals 2; high equals 3; very high equals 4. See pp 5-7 of the 1977 report for details on this measure.

TABLE 3. Secondary School Variables: Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. ENR														
2. NFAC	.917[3] (60)													
3. DATE	-.051 (60)	-.074 (60)												
4. END	.432[3] (55)	.573[3] (55)	-.307[1] (55)											
5. PWOR	.636[3] (57)	.666[3] (57)	-.120 (57)	.686[3] (54)										
6. LIBSZ	.640[3] (57)	.729[3] (57)	-.226[1] (57)	.809[3] (53)	.838[3] (55)									
7. NSCH	.712[3] (57)	.758[3] (57)	-.170 (57)	.640[3] (52)	.837[3] (54)	.846[3] (54)								
8. SCHOOL	.572[3] (59)	.720[3] (59)	-.166 (59)	.810[3] (54)	.902[3] (56)	.890[3] (56)	.877[3] (56)							
9. BOARD	.100 (60)	.137 (60)	.096 (60)	.350[2] (55)	.342[2] (57)	.399[3] (57)	.304[1] (57)	.429[3] (59)						
10. ELITE	.265[1] (60)	.386[3] (60)	-.111 (60)	.558[3] (55)	.548[3] (57)	.568[3] (57)	.362[2] (57)	.612[3] (59)	.452[3] (60)					
11. NGRADS	.695[3] (60)	.736[3] (60)	-.198 (60)	.706[3] (55)	.890[3] (57)	.877[3] (57)	.883[3] (57)	.861[3] (59)	.257[1] (60)	.492[3] (60)				
12. SFR	.276[2] (60)	-.046 (60)	-.089 (60)	-.155 (55)	.054 (57)	-.065 (57)	.046 (57)	-.175 (59)	-.111 (60)	-.199 (60)	.129 (60)			
13. DOLSCH	-.229[1] (56)	-.032 (56)	.149 (56)	.247[1] (51)	.171 (53)	.132 (53)	-.073 (56)	.347[2] (56)	.441[3] (56)	.443[3] (56)	-.004 (56)	-.518[3] (56)		
14. STEND	.208 (55)	.358[2] (55)	-.287[1] (55)	.880[3] (55)	.502[3] (54)	.640[3] (53)	.434[3] (52)	.683[3] (54)	.407[3] (55)	.601[3] (55)	.450[3] (55)	-.207 (55)	.437[3] (51)	
15. PROSCH	-.223[1] (57)	-.127 (57)	-.120 (57)	.230 (52)	.276[1] (54)	.290[1] (54)	.372[2] (57)	.401[3] (56)	.282[1] (57)	.111 (57)	.160 (57)	-.241[1] (57)	.112 (56)	.286[1] (52)

1 = $p \geq .05$; 2 = $p \geq .01$; 3 = $p \geq .001$

TABLE 4. College Variables: Correlations

	1	2	3	4	5	6	7	8	9	10	11
1. ASTSTA											
2. FACSAL	.797[3] (60)										
3. SIZE	.259[1] (60)	.538[3] (60)									
4. PUB	-.478[3] (60)	-.249[1] (60)	.163 (60)								
5. PRI	.579[3] (60)	.481[3] (60)	.003 (60)	-.806[3] (60)							
6. REL	-.398[3] (60)	-.508[3] (60)	-.201 (60)	.155 (60)	-.709[3] (60)						
7. PIER	.748[3] (60)	.816[3] (60)	.568[3] (60)	-.331[2] (60)	.470[3] (60)	-.391[3] (60)					
8. BALIST	.609[3] (60)	.823[3] (60)	.777[3] (60)	-.109 (60)	.340[2] (60)	-.439[3] (60)	.892[3] (60)				
9. COLEND	.646[3] (59)	.649[3] (59)	.605[3] (59)	-.115 (59)	.198 (59)	-.191 (59)	.811[3] (59)	.751[3] (59)			
10. HAWSP	.818[3] (59)	.726[3] (59)	.567[3] (59)	-.377[2] (59)	.466[3] (59)	-.327[2] (59)	.893[3] (59)	.774[3] (59)	.828[3] (59)		
11. HAWSA	.786[3] (59)	.834[3] (59)	.616[3] (59)	-.294[1] (59)	.454[3] (59)	-.404[3] (59)	.958[3] (59)	.862[3] (59)	.831[3] (59)	.957[3] (59)	
12. AVSEL	.841[3] (60)	.696[3] (60)	-.014 (60)	-.397[3] (60)	.569[3] (60)	-.478[3] (60)	.596[3] (60)	.426[3] (60)	.509[3] (60)	.654[3] (59)	.660[3] (59)

1 = p .05; 2 = p .01; 3 = p .001

TABLE 5. Secondary School and College Variables: Intercorrelations

Secondary School Variables	College Variables													
	ASTSTA	FACSAL	SIZE	PUB	PRI	REL	BALIST	COLEND	HAWSP	HAWSA	AVSEL	PIER	PRI4	UNIV
ENR	.309[2] (60)	.365[2] (60)	.314[2] (60)	-.164 (60)	.256[1] (60)	-.233[1] (60)	.368[2] (60)	.182 (59)	.193 (59)	.243[1] (59)	.204 (60)	.287[1] (60)	-.195 (60)	.308[2] (60)
NFAC	.430[3] (60)	.491[3] (60)	.364[2] (60)	-.161 (60)	.305[2] (60)	-.318[2] (60)	.493[3] (60)	.332[2] (59)	.319[2] (59)	.382[3] (59)	.324[2] (60)	.443[3] (60)	-.313[2] (60)	.414[3] (60)
DATE	-.071 (60)	-.174 (60)	-.239[1] (60)	-.009 (60)	-.131 (60)	.238[1] (60)	-.288[1] (60)	-.181 (60)	-.114 (59)	-.145 (59)	-.137 (59)	-.217[1] (60)	-.240[1] (60)	-.217[1] (60)
END	.449[3] (55)	.446[3] (55)	.352[2] (55)	-.139 (55)	.286[1] (55)	-.318[2] (55)	.519[3] (55)	.541[3] (54)	.438[3] (54)	.477[3] (54)	.317[2] (55)	.549[3] (55)	-.333[2] (55)	.386[2] (55)
PWCR	.277[1] (57)	.349[2] (57)	.272[1] (57)	-.010 (57)	.200 (57)	-.217 (57)	.340[2] (57)	.208 (56)	.176 (56)	.215 (56)	.266 (57)	.284 (57)	-.210 (57)	.233[1] (57)
LIBSZ	.393[3] (57)	.415[3] (57)	.274[1] (57)	-.097 (57)	.235[1] (57)	-.258 (57)	.389[3] (57)	.323[2] (56)	.288[1] (56)	.328[2] (56)	.320[2] (57)	.382[2] (57)	-.241[1] (57)	.295[1] (57)
NSCH	.239[1] (57)	.317 (57)	.251[1] (57)	-.079 (57)	.221[1] (57)	-.271[1] (57)	.316[2] (57)	.196 (56)	.156 (56)	.213 (56)	.177 (57)	.258[1] (57)	-.215 (57)	.243[1] (57)
SCHDOL	.443[3] (59)	.498[3] (59)	.319[2] (59)	-.107 (59)	.288[1] (59)	-.352[2] (59)	.511[3] (59)	.417[3] (58)	.356[2] (58)	.422[3] (58)	.376[2] (59)	.484[3] (59)	-.349[2] (59)	.393[3] (59)
BOARD	.186 (60)	.114 (60)	.152 (60)	.047 (60)	.000 (60)	-.054 (60)	.140 (60)	.130 (59)	.166 (59)	.171 (59)	.151 (60)	.160 (60)	-.057 (60)	.087 (60)
ELITE	.442[3] (60)	.391[3] (60)	.246[1] (60)	-.186 (60)	.339[2] (60)	-.343[2] (60)	.388[3] (60)	.293[1] (59)	.373[2] (59)	.363[2] (59)	.341[2] (60)	.404[3] (60)	-.210 (60)	.311[2] (60)
DOLSCH	.431[3] (56)	.372[2] (56)	.058 (56)	.044 (56)	.094 (56)	-.201 (56)	.339[2] (56)	.364[2] (55)	.344[2] (55)	.392[2] (55)	.509[3] (56)	.399[3] (56)	-.182 (56)	.231[1] (56)
STEND	.494[3] (55)	.498[3] (55)	.398[3] (55)	-.105 (55)	.297[1] (55)	-.377[2] (55)	.581[3] (55)	.638[3] (54)	.524[3] (54)	.559[3] (54)	.370[2] (55)	.602[3] (55)	-.384[2] (55)	.427[3] (55)
SFR	-.175 (60)	.138 (60)	.060 (60)	-.083 (60)	.005 (60)	.089 (60)	-.117 (60)	-.205 (59)	-.189 (59)	-.207 (59)	-.276[1] (60)	-.208 (60)	.161 (60)	-.063 (60)
NGRADS	.270[1] (60)	.352[2] (60)	.305[2] (60)	-.153 (60)	.270[1] (60)	-.269[1] (60)	.356[2] (60)	.199 (59)	.182 (50)	.243[1] (59)	.179 (60)	-.308[2] (60)	.191 (60)	.263[1] (60)
PROSCH	-.145 (57)	-.069 (57)	-.178 (57)	.073 (57)	-.017 (57)	-.057 (57)	-.063 (57)	-.055 (56)	-.103 (56)	-.049 (56)	-.008 (57)	-.032 (57)	-.010 (57)	-.180 (57)

1 = p .05; 2 = p .01; 3 = p .001

TABLE 6. Partial Correlation Analyses: Average Selectivity and Secondary School Variables, Controlling for DOLSCH and NFAC*

(N= 44)

	STEND	SCHDOL	ELITE	END	SFR	PWOR	LIBSZ
AVSEL	.101	-.087	-.027	.056	-.071	.-092	.026

*All secondary school variables with significant zero-order correlation coefficients are included in this analysis.

TABLE 7. Regression Analysis: AVSEL With DOLSCH and NFAC

	b	Beta	R	R^2	r
DOLSCH	.000173*	.518	.509	.259	.509
NFAC	.0750*	.294	.587	.345	.277

*Coefficient at least twice its standard error

Footnotes

1. The cut-off points for each selectivity category are specific to each type of college. College types used by Astin et al. are public and private universities, public four-year and private universities, public four-year and private non-sectarian, Catholic, and Protestant four-year colleges (see Astin et al, 1978, p. 4).

2. These data are derived from information presented in Table 76 (p. 77) of W. V. Grant and C. G. Lind, Digest of Educational Statistics, 1977-1978.

3. This figure was computed as follows: with the 1976-1979 salary (Digest of Educational Statistics, 1977-1978, Table 102), 13.39 percent was added which equals the average value of the difference between salary and total compensation as reported by The Chronicle data, and 5.8 percent which represents the average full professor's increase in 1977-1978 salary over the 1976-1977 salary.

Appendix 1

Cass and Birnbaum Selectivity

		%	N
1.	Not Selective	10.00	578
2.	Selective	20.60	1198
3.	Very Selective	13.30	774
4.	Very Selective	6.60	383
5.	Highly Selective	23.30	1355
6.	Most Selective	25.00	1451
	Missing	1.10	66
		100.00	5805

Appendix 2

The Men in Standard and Poor's, 1964
(Analysis of the College, Graduate and Professional School Connections of the 72,153 Executives and Directors Listed in Standard and Poor's)*

Name of Institution	Number of Individuals Attending
Harvard	3,465
Yale	2,446
Princeton	1,506
Pennsylvania	1,393
Michigan	1,292
New York University	1,183
Cornell	1,077
Columbia	969
Dartmouth	902
Illinois	902
M.I.T.	885
Wisconsin	843
California	821
Northwestern	811
Minnesota	590
Ohio State	578
Stanford	557
Chicago	526
Williams	438
C.C.N.Y.	380
Pittsburgh	380
Purdue	375
Toronto	368
Pennsylvania State	359
Washington, St. Louis	344
Totals	
Top 25 Institutions	23,389
Other than top 25	24,804
No College or University	23,690

Source: George W. Pierson, The Education of American Leaders: Comparative Contribution of U.S. Colleges and Universities, p. 110. New York: Praeger, 1969.

*The data in this table are reproduced as found in Pierson .; the totals at the bottom do not equal the totals in the table.

Appendix 3

Top 12 Sources of Undergraduate and Graduate Degrees of 55,834 Business Executives Survey by Standard and Poor's, 1980

Undergraduate Degrees		Graduate Degrees	
Yale	1,827	Harvard	3,920
Harvard	1,494	New York University	1,365
C.C.N.Y	1,339	Columbia	1,210
Princeton	1,313	Michigan	811
New York University	1,250	Pennsylvania	726
Pennsylvania	1,171	Chicago	696
Michigan	1,125	Northwestern	659
Illinois	1,072	M.I.T.	568
Wisconsin	1,017	Rutgers	556
Northwestern	932	Stanford	516
Cornell	904	Wisconsin	479
Dartmouth	882	Yale	428

Source: The Chronicle of Higher Education, September 29, 1980, p. 1.

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